National Institute of Environmental Health Sciences

Recent advances in the molecular and cellular biology of bunyaviruses

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Abstract:

The family Bunyaviridae of segmented, negative-stranded RNA viruses includes over 350 members that infect a bewildering variety of animals and plants. Many of these bunyaviruses are the causative agents of serious disease in their respective hosts, and are classified as emerging viruses because of their increased incidence in new populations and geographical locations throughout the world. Emerging bunyaviruses, such as Crimean-Congo hemorrhagic fever virus, tomato spotted wilt virus and Rift Valley fever virus, are currently attracting great interest due to migration of their arthropod vectors, a situation possibly linked to climate change. These and other examples of continued emergence suggest that bunyaviruses will probably continue to pose a sustained global threat to agricultural productivity, animal welfare and human health. The threat of emergence is particularly acute in light of the lack of effective preventative or therapeutic treatments for any of these viruses, making their study an important priority. This review presents recent advances in the understanding of the bunyavirus life cycle, including aspects of their molecular, cellular and structural biology. Whilst special emphasis is placed upon the emerging bunyaviruses, we also describe the extensive body of work involving model bunyaviruses, which have been the subject of major contributions to our overall understanding of this important group of viruses.

Source: http://dx.doi.org/10.1099/vir.0.035105-0

Resource Description

Communication: ☑

resource focus on research or methods on how to communicate or frame issues on climate change; surveys of attitudes, knowledge, beliefs about climate change

A focus of content

Communication Audience: ☑

audience to whom the resource is directed

Researcher

Exposure : ☑

weather or climate related pathway by which climate change affects health

Unspecified Exposure

Geographic Feature: ☑

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

Global or Unspecified

Health Impact:

specification of health effect or disease related to climate change exposure

Infectious Disease

Infectious Disease: Vectorborne Disease, Zoonotic Disease

Vectorborne Disease: Mosquito-borne Disease, Tick-borne Disease

Mosquito-borne Disease: Rift Valley Fever

Tick-borne Disease: Crimean-Congo Haemorrhagic Fever

Zoonotic Disease: Hantavirus Pulmonary Syndrome

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation

Resource Type:

format or standard characteristic of resource

Review

Timescale:

time period studied

Time Scale Unspecified